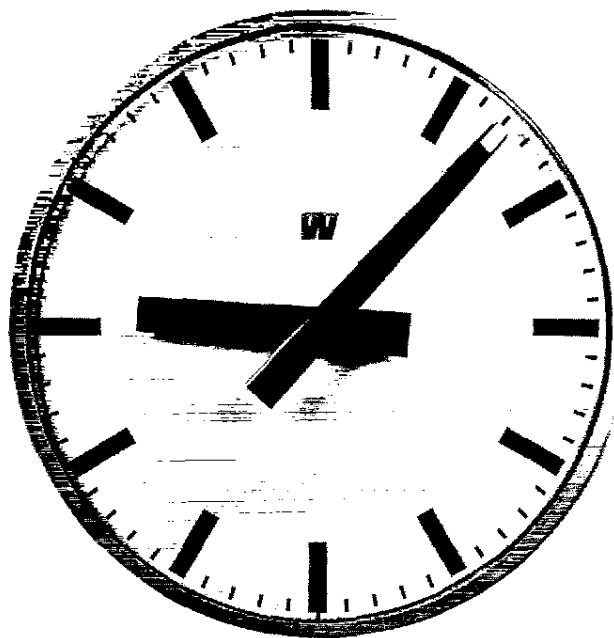


FRANKLIN

TIME SYSTEMS



36" Clock with Marker Dial

Standard Clock Features:

- MARK 5M heavy duty movement, two hand clock
- Bi-Polar Impulse (BIPI) signals for the only TRUE SLAVE* clocks available
- Round dials in 24" and 36" diameter models
- Quiet dependable operation
- Wiring connectors included
- Choice of numbered dials or marker dials

Optional Clock Features:

- Double dial model available with mount bracket
- Outdoor models are protected for weather resistance

*MARK 5M True Slave Clocks

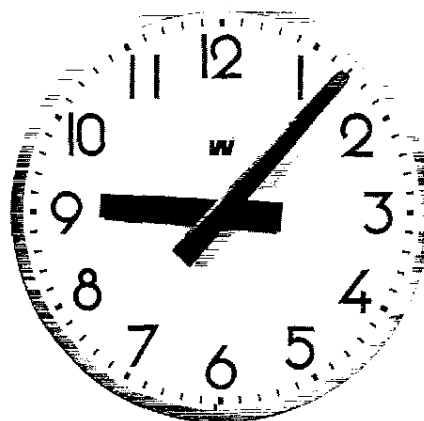
The Franklin/Westerstrand Time Systems MARK 5M Series TRUE SLAVE CLOCKS never require time error correction. The clocks are in constant absolute control by the Master Clock. It is accomplished using electro-magnetic force through a bi-polar impulse (BIPI) rotary clock drive. The system eliminates error-prone mechanical linkages, cam drives and switch contacts, the major causes of inaccurate timekeeping in all other secondary clock systems. Only Franklin Time Systems offers (BIPI) TRUE SLAVE CLOCKS.

Large System Clocks Indoor-Outdoor Use Plain or Illuminated

To Order, see reverse side of this sheet

II-04

Using MARK 5M True Slave* Heavy Duty Movement



24" Clock with Number Dial

General Description:

The Franklin/Westerstrand large true slave analog bi-polar impulse clocks are suitable for mounting indoors, and outdoors when a weather resistant back is applied. They are available with plain dials, or illuminated dials for high visibility in poorly lighted or for night time viewing at great distances. Choice of dials also includes number style and marker style.

These attractive and rugged system timepieces are meant to be viewed at great distances inside factories, for example, or from outside tower locations.

For TECHNICAL SPECIFICATIONS see reverse side of sheet.

Engineer's Specifications:

The large heavy duty bi-polar impulse (BIPI) analog slave clocks for (specify indoor or outdoor) application shall be Franklin/Westerstrand MARK 5M furnished as designated in the plans (or purchase order). The clocks shall be (specify 24" or 36") nominal diameter.

Clock dials shall be provided with (specify numbers or markers) and shall be (specify plain or illuminated) style. The clocks will display time in a 12 hour format. Electrical connections will be made in accordance with local prevailing electrical codes to built-in terminal connectors.

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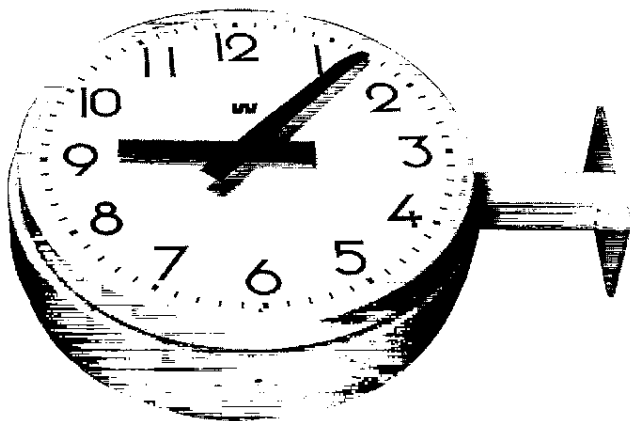
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Technical Specifications:

- Control Pulse: Bi-polar Impulse (BIPI)
- Electrical: For Plain Dial Styles, 2 wire-18 ga.
24 VDC Impulse @ 15.0 mA-2 wire

For Illuminated Dial Styles-
24 VDC Impulse @ 15.0 mA-2 wire
Add 110 Volt, 60 Hz to each clock
or double mount for illumination.
Current draw for illumination 0.3 A
- Illumination: TUBES NOT INCLUDED
Use #F15T8 (15 W) tube or equivalent. (18" long x 1" diameter)
 - Three (3) tubes per 24" clock
 - Five (5) tubes per 36" clock
- Clock Backs: Provided only for Single Face
Outdoor Styles or upon special request for indoor clocks at extra charge.
- Clock Sizes: 24" Nominal Diameter (600 mm)
36" Nominal Diameter (900 mm)
- Clock Weight*: **Plain Dial Styles:**
 - 24" Single Face - 12.1 lbs.
 - 24" Double Face - 52.8 lbs.
 - 36" Single Face - 25.3 lbs.
 - 36" Double Face - 88.0 lbs.**Illuminated Dial Styles:**
 - 24" Single Face - 44.0 lbs.
 - 24" Double Face - 61.6 lbs.
 - 36" Single Face - 73.7 lbs.
 - 36" Double Face - 100.1 lbs.

*Includes Mount for Double Face Clocks



FAX 215-322-1022 or Call 800-321-2353

ORDER INFORMATION:

DIAL STYLES- "-A" is full number dial
"-H" is marker dial only
"-I" designates illumination
ALL CASE COLORS ARE LIGHT GRAY

PLAIN DIAL SINGLE FACE - Indoor

24"	W24-5-A	#111800-00
24"	W24-5-H	#111802-00
36"	W36-5-A	#111816-00
36"	W36-5-H	#111818-00

ILLUMINATED DIAL SINGLE FACE - Indoor

24"	W24-5-A-I	#111805-00
24"	W24-5-H-I	#111807-00
36"	W36-5-A-I	#111821-00
36"	W36-5-H-I	#111823-00

PLAIN DOUBLE FACE with DOUBLE MOUNT

24"	WDM24-5-A	#111840-00
24"	WDM24-5-H	#111842-00
36"	WDM36-5-A	#111864-00
36"	WDM36-5-H	#111866-00

ILLUMINATED DOUBLE FACE with DOUBLE MOUNT

24"	WDM24-5-A-I	#111851-00
24"	WDM24-5-H-I	#111853-00
36"	WDM36-5-A-I	#111861-00
36"	WDM36-5-H-I	#111863-00

SPECIAL PLAIN SINGLE FACE with BACK PLATE for OUTDOOR APPLICATION (not Illuminated)

24"	W24B-5-A	#111801-00
24"	W24B-5-H	#111803-00
36"	W36B-5-A	#111817-00
36"	W36B-5-H	#111819-00

NOTE: The Franklin/Westerstrand large indoor/outdoor clocks are drive by a Franklin Master Clock which provides bi-polar impulses to achieve constant accurate displayed time. Use any of the following Master Clock products:

- WDP-Y8/6/4 Master Clock/Programmer
- Quartz-W Master Clock
- WMM Mini-Master Clock

Call us at Franklin if you need assistance or you require further information. We are happy to assist you.

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FRANKLIN

TIME SYSTEMS

PRODUCT

MARK 5M True Slave*

Analog Secondary Clocks

To Order, see reverse side of this sheet

Standard Clock Features:

- Mark 5 M two hand clock, minutes impulse.
- Bi-Polar Impulse (BIPI) signals for the only true slave clocks available.
- Round dials in 9", 12", 16" diameter models.
- Number or marker dials.
- Light, sturdy molded ABS plastic cases- brown or gray
- Shallow profile-no backbox required.
- Universal wall mount bracket or use existing backbox.
- Quiet, dependable operation.
- Wiring connectors included.

Optional Clock Features:

- Metal cases in square or round styles in 9", 12", 16".
- Double dial models (view from two sides).
- Special colors available for metal clock cases.
- Weatherproof outdoor models available.
- Also available in 24" and 36" styles.
- Decorator clock styles available.

General Description:

The Franklin MARK 5M true slave analog impulse indoor clocks have a shallow profile for mounting with or without a backbox. These attractive and modern clocks provide the leading edge in constant correct time output, using Franklin's exclusive "bi-polar impulse" (BIPI) discipline system. The clocks are available in 9", 12", and 16" sizes, in round or square cases. Dial marks can be numbers with minute marks (style A) or minute markers only (style H). Crystals are provided in quality glass using a standard convex design. Viewing distances are: 30 ft. for 9" clocks, 40 ft. for 12" clocks, and 90 ft. for the 16" size. Used in conjunction with Franklin's master clocks and master clock & event programmer.

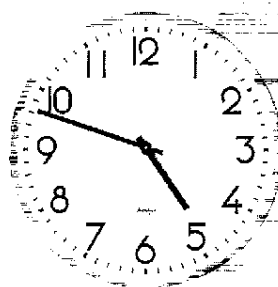
Engineers' Specifications:

The bi-polar impulse (BIPI) analog slave clock(s) shall be Franklin MARK 5M furnished and installed as designated in the plans or purchase order. Each clock to be of (specify dimension) size having a (specify shape, i.e., round or square) style case.

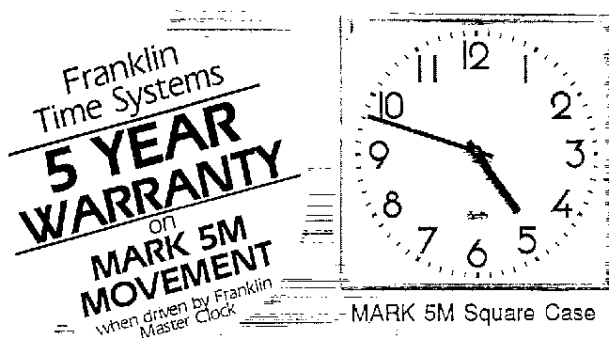
The dials shall be imprinted with (specify number and minute markers or minute markers only) and to be visible at a distance of (specify distance according to dial size selected) feet at ambient lighting conditions.

The Franklin MARK 5M clock will display time in a 12 hour format. Electrical connections will be made in accordance with local prevailing electrical codes and to a built-in terminal connector.

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MARK 5M Round Case



MARK 5M Square Case

Technical Specifications:

- Control Pulse: Use bi-polar impulse (BIPI)
- Electrical: 24 VDC, Impulse Current at 7 mA.
- Dial Sizes:

	9"	12"	16"
• Weight (lbs) Round	1.75	2.50	3.25
Square	3.25	4.25	6.50
- Case Depth: Round

	9"	12"	16"
Round	2.38"	2.38"	2.38"
Square	2.20"	2.20"	2.20"
- Case Diameter or Square:

	9"	12"	16"
Round	9.40"	12.3"	16.4"
Square	9.40"	12.2"	16.2"

*MARK 5 True Slave Clocks

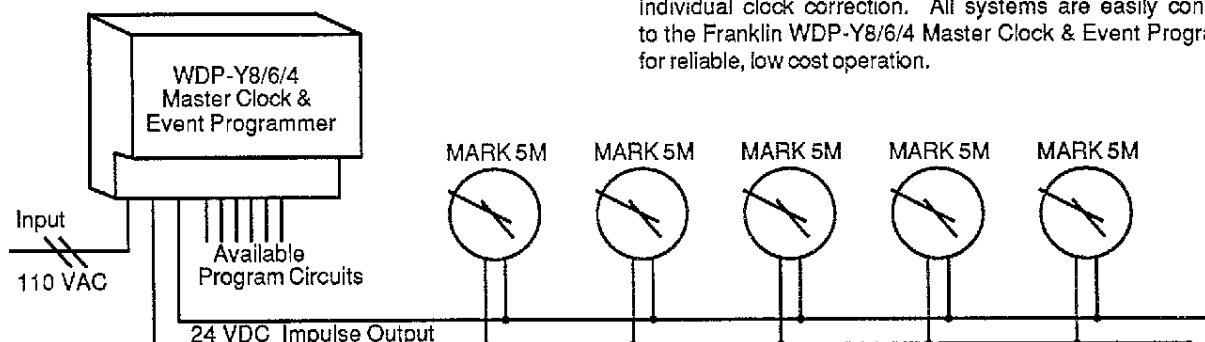
The Franklin Time Systems MARK 5 Series TRUE SLAVE CLOCKS never require time error correction. These clocks are in constant absolute control by the Master Clock. This is accomplished using electro-magnetic force through a bi-polar impulse (BIPI) rotary clock drive. The system eliminates error-prone mechanical linkages, cam drives and switch contacts, which are the major causes of inaccurate timekeeping in all other secondary clock time systems. Only Franklin Time Systems offers the (BIPI) true slave clocks.



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FRANKLIN TIME SYSTEMS

TYPICAL MARK 5M CLOCK SYSTEM
SCHEMATIC



Franklin's MARK 5M secondary clocks are a unique system of TRUE SLAVE clocks which maintain accuracy through alternating bi-polar impulses (BIPI), eliminating the need for individual clock correction. All systems are easily connected to the Franklin WDP-Y8/6/4 Master Clock & Event Programmer for reliable, low cost operation.

NOTE: The WDP-Y8/6/4 Master Clock & Event Programmer is shown in the above schematic diagram. Please keep in mind that the Franklin Quartz-W or the Franklin WMM Mini-Master may also be used depending upon system requirements.

				TO ORDER, SELECT PART NUMBER BELOW			
CLOCK SIZE	CLOCK SHAPE	FACE		CASE COLOR		MINUTES IMPULSE	
		A	H	G	B	Plastic Clock Case MARK 5M	Metal Clock Case MARK 5 M
				Gray	Brown		
9"	Round	.	.	.	.	W9-5M-A-G	WM9R-5M-A-G
9"	"	.	.	.	.	W9-5M-A-B	WM9R-5M-H-G
9"	"	.	.	.	.	W9-5M-H-G	WM9S-5M-A-G
9"	"	.	.	.	.	W9-5M-H-B	WM9S-5M-H-G
9"	Square	.	.	.	.
12"	Round	.	.	.	.	W12-5M-A-G	WM12R-5M-A-G
12"	"	.	.	.	.	W12-5M-A-B	WM12R-5M-H-G
12"	"	.	.	.	.	W12-5M-H-G	WM12S-5M-A-G
12"	"	.	.	.	.	W12-5M-H-B	WM12S-5M-H-G
12"	Square	.	.	.	.
16"	Round	.	.	.	.	W16-5M-A-G	WM16R-5M-A-G
16"	"	.	.	.	.	W16-5M-A-B	WM16R-5M-H-G
16"	"	.	.	.	.	W16-5M-H-G	WM16S-5M-A-G
16"	"	.	.	.	.	W16-5M-H-B	WM16S-5M-H-G
16"	Square	.	.	.	.

NOTE: Clocks
also available in
24" and 36" sizes.

*Special case colors available for all metal cases at extra charge.

Franklin

TIME SYSTEMS

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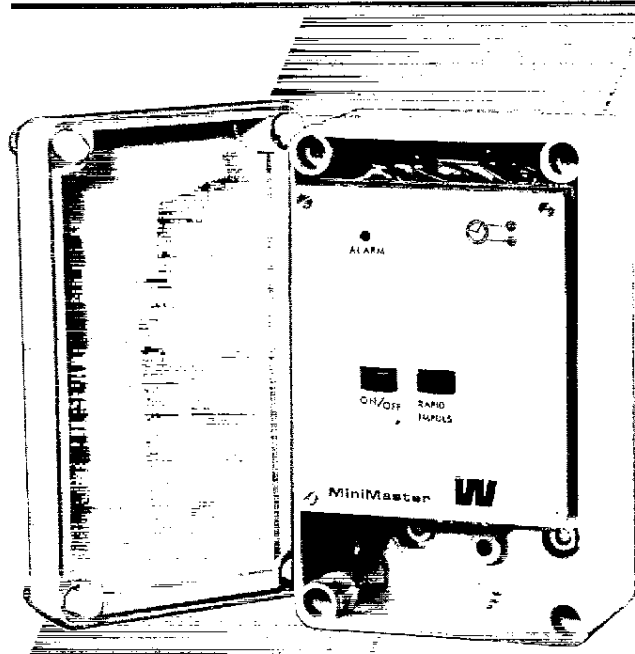
PRODUCT

WMM-Mini Master MASTER CLOCK

Order FRANKLIN Unit Number 122480

Standard Features:

- Minutes impulse operation
- Operate MARK 5 M Series (BIPI) two handed clocks.
- Operates Analog and/or Digital clock secondaries.
- Continuous operation during power outages from back-up batteries.
- Manual controls for:
ON/OFF
START/STOP
RAPID IMPULSE
- Fused output will operate up to 20 Franklin Mark 5 Series secondary clocks.
- Rapid impulse @ 15 impulses per minute.
- Water-Tight enclosure.



General Description:

The Franklin WMM Mini Master Clock is a quartz crystal based master time system controller which will operate Franklin MARK 5 Series bi-polar impulse (BIPI) clock systems.

Original or corrective time setting is accomplished by manual rapid impulses, or by stopping the master clock.

The WMM Mini Master is ideal for use in a small system where synchronized signals (bells) or events are not needed.

The master clock is based on CMOS circuits with low power consumption. It has fuse protected output amplifier against overloads and short circuits.

The time base consists of a quartz crystal. This master clock is perfect for a small office or industrial application.

Engineers' Specifications:

The master clock shall be a Franklin WMM Mini Master having a quartz crystal time base with an accuracy of 0.1 seconds per 24 hours.

Input voltage shall be 120 Volts AC with output voltage of 24 Volts DC. It shall accommodate either a two-wire or a three-wire low voltage system of secondary clocks.

The master clock shall have convenient manual controls to operate the unit. Control capabilities shall include on-off, rapid impulse for minutes setting, stop-start, as well as reset capabilities.

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Technical Specifications:

- Power Input: 120 Volt AC, 60 Hz
- Power Output: 24 Volt DC
- Total Clock Load:
150 mA @ 24VDC
- Battery Back-up: 10 hrs @ max. load
- Operating Temperature Range:
32° F (0° C) to 104° F (40° C)
- Weight: 2 lbs.
- Dimensions:
Width 4.19"
Height 6.75"
Depth 3.32"
- Frequency: 4.194304 MHz (crystal)
- Accuracy: 0.1 Seconds per 24 Hours

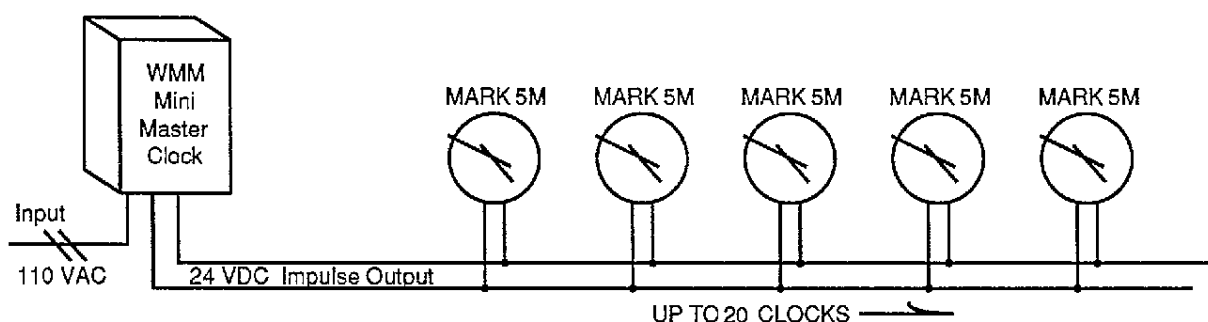


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FRANKLIN TIME SYSTEMS

Select the Franklin WMM Mini-Master clock for those applications where a small or modest size clock system is required yet where constant accuracy is desired for displayed time. This system is the most economical for combined equipment investment and operating cost available on the time systems market. The WMM Mini-Master, combined with Franklin MARK 5M secondary clocks which operate on the exclusive bi-polar impulse (BIP) concept, is an accurate, low maintenance, and reliable system for years to come.

TYPICAL WMM Mini-Master 2 WIRE SYSTEM
w/ MARK 5M CLOCKS



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FRANKLIN TIME SYSTEMS

WMM-Mini Master MASTER CLOCK Operating Instructions

IH-10

STARTING UP

Before starting the clock system be certain all wiring to the WMM Mini Master Clock and to all secondary clocks was carefully performed and checked.

OPERATING INSTRUCTIONS

The Start/Stop pushbutton is a two position button. This button turns the power "ON" when it is pressed to the in position. Conversely, this same button turns the power "OFF" when it is released to the out position.

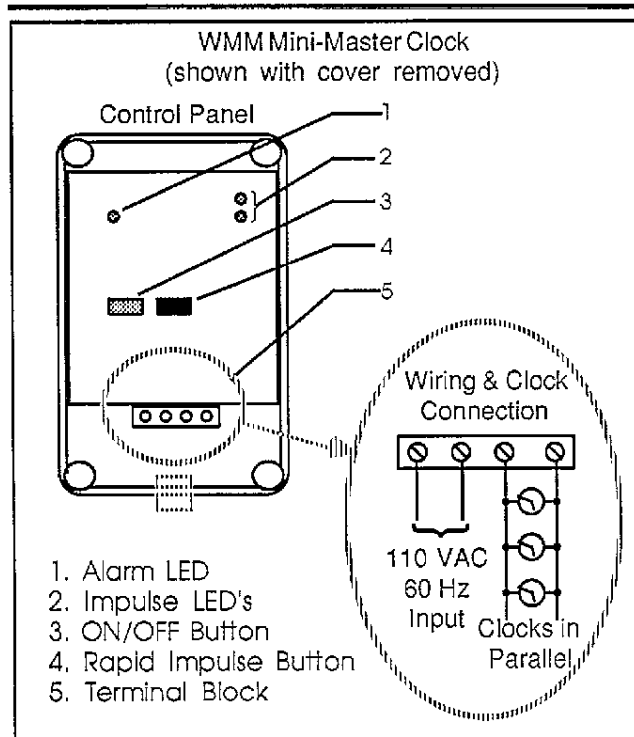
The Rapid Impulse button causes rapid forward advancement of the minute and hour hands at 4 second intervals. This amounts to a 15 time pulse rate.

The red LED light is an overload indicator. When there is a short circuit or an overload occurs the LED bulb will light. When this happens turn the unit off by pressing the Start/Stop button releasing it to its out position.

To restart the unit, press the Start/Stop button to its in position.

SETTING THE SYSTEM TIME

1. Open the WMM Mini Master case by unscrewing the four (4) captive screws located in the watertight cover. Pry the cover loose gently to avoid marking the case or cover.
2. Make certain the Start/Stop button is in its out position.
3. Connect clock output wires in parallel.
4. Connect 110 volt AC to terminals.



5. Make certain all slave clocks are manually set to read the same identical time.

6. Push the Start/Stop button to its in position. This will start the slave clocks after a 60 second delay.

7. Advance the slave clocks forward, if necessary, to the correct time by pushing in the Rapid Impulse button for fast impulses. The clocks will move forward at a rate of 15 pulses per minute. Release the Rapid Impulse button when the correct time has been reached.

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